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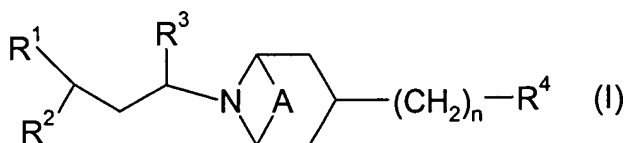
JC17 Rec'd PCT/PTO 15 JUN 2005

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A compound of formula (I):



wherein

A is absent or is (CH₂)₂;

R¹ is C₁₋₈ alkyl, C(O)NR¹⁰R¹¹, C(O)₂R¹², NR¹³C(O)R¹⁴, NR¹⁵C(O)NR¹⁶R¹⁷, NR¹⁸C(O)₂R¹⁹, heterocyclyl, aryl or heteroaryl;

R¹⁰, R¹³, R¹⁵, R¹⁶ and R¹⁸ are hydrogen or C₁₋₆ alkyl;

R¹¹, R¹², R¹⁴, R¹⁷ and R¹⁹ are C₁₋₈ alkyl (optionally substituted by halo, hydroxy, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, C₃₋₆ cycloalkyl (optionally substituted by halo), C₅₋₆ cycloalkenyl, S(C₁₋₄ alkyl), S(O)(C₁₋₄ alkyl), S(O)₂(C₁₋₄ alkyl), heteroaryl, aryl, heteroaryloxy or aryloxy), aryl, heteroaryl, C₃₋₇ cycloalkyl (optionally substituted by halo or C₁₋₄ alkyl), C₄₋₇ cycloalkyl fused to a phenyl ring, C₅₋₇ cycloalkenyl, or[[,]] heterocyclyl (itself optionally substituted by oxo, C(O)(C₁₋₆ alkyl), S(O)_k(C₁₋₆ alkyl), halo or C₁₋₄ alkyl); or R¹¹, R¹², R¹⁴ and R¹⁷ can also be hydrogen;

or R¹⁰ and R¹¹, and/or R¹⁶ and R¹⁷ may join to form a 4-, 5- or 6-membered ring which optionally includes a nitrogen, oxygen or sulphur atom, said ring being optionally substituted by C₁₋₆ alkyl, S(O)_l(C₁₋₆ alkyl) or C(O)(C₁₋₆ alkyl);

R² is C₁₋₆ alkyl, phenyl, heteroaryl or C₃₋₇ cycloalkyl;

R³ is H or C₁₋₄ alkyl;

R⁴ is aryl or heteroaryl; and

n is 2, 3 or 4;

unless specified otherwise aryl, phenyl and heteroaryl moieties are independently optionally substituted by one or more of halo, cyano, nitro, hydroxy, $\text{OC(O)NR}^{20}\text{R}^{21}$, $\text{NR}^{22}\text{R}^{23}$, $\text{NR}^{24}\text{C(O)R}^{25}$, $\text{NR}^{26}\text{C(O)NR}^{27}\text{R}^{28}$, $\text{S(O)}_2\text{NR}^{29}\text{R}^{30}$, $\text{NR}^{31}\text{S(O)}_2\text{R}^{32}$, $\text{C(O)NR}^{33}\text{R}^{34}$, CO_2R^{36} , $\text{NR}^{37}\text{CO}_2\text{R}^{38}$, $\text{S(O)}_q\text{R}^{39}$, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-10} cycloalkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{1-6} haloalkoxy, phenyl, phenyl(C_{1-4})alkyl, phenoxy, phenylthio, phenylS(O), phenylS(O)₂, phenyl(C_{1-4})alkoxy, heteroaryl, heteroaryl(C_{1-4})alkyl, heteroaryloxy or heteroaryl(C_{1-4})alkoxy; wherein any of the immediately foregoing phenyl and heteroaryl moieties are optionally substituted with halo, hydroxy, nitro, S(C_{1-4} alkyl), S(O)(C_{1-4} alkyl), S(O)₂(C_{1-4} alkyl), S(O)₂NH₂, S(O)₂NH(C_{1-4} alkyl), S(O)₂N(C_{1-4} alkyl)₂, cyano, C_{1-4} alkyl, C_{1-4} alkoxy, C(O)NH₂, C(O)NH(C_{1-4} alkyl), C(O)N(C_{1-4} alkyl)₂, CO₂H, CO₂(C_{1-4} alkyl), NHC(O)(C_{1-4} alkyl), NHS(O)₂(C_{1-4} alkyl), CF₃ or OCF₃; and

unless otherwise stated heterocyclyl is optionally substituted by C_{1-6} alkyl [optionally substituted by phenyl {which itself optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, cyano, nitro, CF₃, OCF₃, (C_{1-4} alkyl)C(O)NH, S(O)₂NH₂, C_{1-4} alkylthio, S(O)(C_{1-4} alkyl) or S(O)₂(C_{1-4} alkyl)} or heteroaryl {which itself optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, cyano, nitro, CF₃, (C_{1-4} alkyl)C(O)NH, S(O)₂NH₂, C_{1-4} alkylthio, S(O)(C_{1-4} alkyl) or S(O)₂(C_{1-4} alkyl)}], phenyl {optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, cyano, nitro, CF₃, OCF₃, (C_{1-4} alkyl)C(O)NH, S(O)₂NH₂, C_{1-4} alkylthio, S(O)(C_{1-4} alkyl) or S(O)₂(C_{1-4} alkyl)}, heteroaryl {optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, cyano, nitro, CF₃, (C_{1-4} alkyl)C(O)NH, S(O)₂NH₂, C_{1-4} alkylthio, S(O)(C_{1-4} alkyl) or S(O)₂(C_{1-4} alkyl)}, S(O)₂NR⁴⁰R⁴¹, C(O)R⁴², C(O)₂(C_{1-6} alkyl) (~~such as tert-butoxybenzyl~~), C(O)₂(phenyl(C_{1-2} alkyl)) (~~such as benzylbenzyl~~), C(O)NHR⁴³, S(O)₂R⁴⁴, NHS(O)₂NHR⁴⁵, NHC(O)R⁴⁶, NHC(O)NHR⁴⁷ or NHS(O)₂R⁴⁸, provided none of these last four substituents is linked to a ring nitrogen;

k, l, [[p]] and q are, independently, 0, 1 or 2;

R²⁰, R²², R²⁴, R²⁶, R²⁷, R²⁹, R³¹, R³³, R³⁷ and R⁴⁰ are, independently, hydrogen or C_{1-6} alkyl;

R²¹, R²³, R²⁵, R²⁸, R³⁰, R³², R³⁴, R³⁶, R³⁸, R³⁹, R⁴¹, R⁴², R⁴³, R⁴⁴, R⁴⁵, R⁴⁶, R⁴⁷ and R⁴⁸ are, independently, C_{1-6} alkyl (optionally substituted by halo, hydroxy, C_{1-6} alkoxy, C_{1-6} haloalkoxy,

C₃₋₆ cycloalkyl, C₅₋₆ cycloalkenyl, S(C₁₋₄ alkyl), S(O)(C₁₋₄ alkyl), S(O)₂(C₁₋₄ alkyl), heteroaryl, phenyl, heteroaryloxy or phenyloxy), C₃₋₇ cycloalkyl, phenyl or heteroaryl; wherein any of the immediately foregoing phenyl and heteroaryl moieties are optionally substituted with halo, hydroxy, nitro, S(C₁₋₄ alkyl), S(O)(C₁₋₄ alkyl), S(O)₂(C₁₋₄ alkyl), S(O)₂NH₂, S(O)₂NH(C₁₋₄ alkyl), S(O)₂N(C₁₋₄ alkyl)₂, cyano, C₁₋₄ alkyl, C₁₋₄ alkoxy, C(O)NH₂, C(O)NH(C₁₋₄ alkyl), C(O)N(C₁₋₄ alkyl)₂, CO₂H, CO₂(C₁₋₄ alkyl), NHC(O)(C₁₋₄ alkyl), NHS(O)₂(C₁₋₄ alkyl), C(O)(C₁₋₄ alkyl), CF₃ or OCF₃; and

R²¹, R²³, R²⁵, R²⁸, R³⁰, R³⁴, [[R³⁵,]] R³⁶, R⁴¹, R⁴², R⁴³, R⁴⁴, R⁴⁵, R⁴⁶ and R⁴⁷ may additionally be hydrogen;

or a pharmaceutically acceptable salt thereof or a solvate thereof.

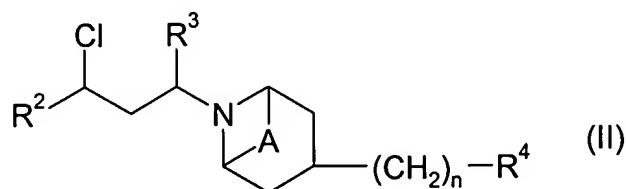
2. (Original) A compound as claimed in claim 1 wherein A is absent.
3. (Currently amended) A compound as claimed in claim 1 [[or 2]] wherein n is 3.
4. (Currently amended) A compound as claimed in claim 1, [[2 or 3]] wherein R¹ is piperidin-1-yl or piperazin-1-yl 4-substituted by, or piperidin-4-yl 1-substituted by, C₁₋₆ alkyl, C₃₋₇ cycloalkyl, phenyl {optionally substituted by, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, S(O)₂(C₁₋₄ alkyl), S(O)₂(C₁₋₄ fluoroalkyl), S(O)₂phenyl {optionally substituted by halo, cyano, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃, OCF₃, S(O)₂(C₁₋₄ alkyl) or S(O)₂(C₁₋₄ fluoroalkyl)}, benzyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, C(O)H, C(O)(C₁₋₄ alkyl), benzoyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, C(O)₂(C₁₋₄ alkyl), C(O)NH₂, C(O)NH(C₁₋₄ alkyl) or C(O)NHphenyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}.
5. (Currently amended) A compound as claimed in claim 1, ~~2, 3 or 4~~ wherein R² is phenyl optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, S(O)_q(C₁₋₄ alkyl), nitro, cyano or CF₃; wherein q is 0, 1 or 2.

6. (Currently amended) A compound as claimed in ~~any preceding~~ claim 1 wherein R^3 is hydrogen.

7. (Currently amended) A compound as claimed in ~~any preceding~~ claim 1 wherein R^4 is phenyl optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, $S(O)_s(C_{1-4}$ alkyl), nitro, cyano or CF_3 ; wherein s is 0, 1 or 2.

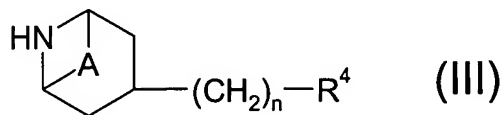
8. (Original) A process for preparing a compound as claimed in claim 1, the process comprising

a. when R^1 is an N-linked optionally substituted heterocycle, reacting a compound of formula (II):

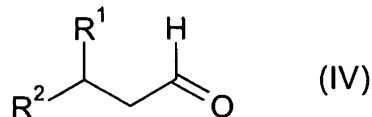


wherein R^2 , R^3 , R^4 , n and A are as defined in claim 1, with a compound R^1H (wherein the H is on a heterocycle ring nitrogen atom and R^1 is as defined in claim 1), in the presence of a suitable base, in a suitable solvent and, for example, at a room temperature; OR,

b. when R^3 is hydrogen, coupling a compound of formula (III):



wherein R^4 , n and A are as defined in claim 1, with a compound of formula (IV):



wherein R^1 and R^2 are as defined in claim 1, in the presence of $NaBH(OAc)_3$ (wherein Ac is $C(O)CH_3$) in a suitable solvent at room temperature.

9. (Original) A pharmaceutical composition which comprises a compound as claimed in claim 1, or a pharmaceutically acceptable salt thereof or solvate thereof, and a pharmaceutically acceptable adjuvant, diluent or carrier.

10. (Cancelled)

11. (Cancelled)

12. (Original) A method of treating a CCR5 mediated disease state comprising administering to a patient in need of such treatment an effective amount of a compound as claimed in claim 1, or a pharmaceutically acceptable salt thereof or solvate thereof.

13. (New) A compound as claimed in claim 2, wherein n is 3.

14. (New) A compound as claimed in claim 2, wherein R¹ is piperidin-1-yl or piperazin-1-yl 4-substituted by, or piperidin-4-yl 1-substituted by, C₁₋₆ alkyl, C₃₋₇ cycloalkyl, phenyl {optionally substituted by, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, S(O)₂(C₁₋₄ alkyl), S(O)₂(C₁₋₄ fluoroalkyl), S(O)₂phenyl {optionally substituted by halo, cyano, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃, OCF₃, S(O)₂(C₁₋₄ alkyl) or S(O)₂(C₁₋₄ fluoroalkyl)}, benzyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, C(O)H, C(O)(C₁₋₄ alkyl), benzoyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}, C(O)₂(C₁₋₄ alkyl), C(O)NH₂, C(O)NH(C₁₋₄ alkyl) or C(O)NHphenyl {optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, CF₃ or OCF₃}.

15. (Currently amended) A compound as claimed in claim 2, wherein R² is phenyl optionally substituted by halo, C₁₋₄ alkyl, C₁₋₄ alkoxy, S(O)_q(C₁₋₄ alkyl), nitro, cyano or CF₃; wherein q is 0, 1 or 2.

16. (New) A compound as claimed in claim 2, wherein R^3 is hydrogen.
17. (New) A compound as claimed in claim 2, wherein R^4 is phenyl optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, $S(O)_s(C_{1-4}$ alkyl), nitro, cyano or CF_3 ; wherein s is 0, 1 or 2.
18. (New) A compound as claimed in claim 3, wherein R^1 is piperidin-1-yl or piperazin-1-yl 4-substituted by, or piperidin-4-yl 1-substituted by, C_{1-6} alkyl, C_{3-7} cycloalkyl, phenyl {optionally substituted by, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3 or OCF_3 }, $S(O)_2(C_{1-4}$ alkyl), $S(O)_2(C_{1-4}$ fluoroalkyl), $S(O)_2$ phenyl {optionally substituted by halo, cyano, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3 , OCF_3 , $S(O)_2(C_{1-4}$ alkyl) or $S(O)_2(C_{1-4}$ fluoroalkyl)}, benzyl {optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3 or OCF_3 }, $C(O)H$, $C(O)(C_{1-4}$ alkyl), benzoyl {optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3 or OCF_3 }, $C(O)_2(C_{1-4}$ alkyl), $C(O)NH_2$, $C(O)NH(C_{1-4}$ alkyl) or $C(O)NH$ phenyl {optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, CF_3 or OCF_3 }.
19. (New) A compound as claimed in claim 3, wherein R^2 is phenyl optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, $S(O)_q(C_{1-4}$ alkyl), nitro, cyano or CF_3 ; wherein q is 0, 1 or 2.
20. (New) A compound as claimed in claim 3, wherein R^3 is hydrogen.
21. (New) A compound as claimed in claim 3, wherein R^4 is phenyl optionally substituted by halo, C_{1-4} alkyl, C_{1-4} alkoxy, $S(O)_s(C_{1-4}$ alkyl), nitro, cyano or CF_3 ; wherein s is 0, 1 or 2.